HURRICANE
PORT PREPAREDNESS
&
RESPONSE PLAN

CAPTAIN OF THE PORT WILMINGTON, NC

Updated May 2003

This plan has been prepared for the use by specific port organizations to assist in the preparation for and response to severe weather conditions. It has been designed to provide basic essential information regarding storm conditions and categories, as well as checklists for specific types of maritime interests. Users are encouraged to review and become familiar with the guidance contained in the plan, and to communicate with the Captain of the Port Office regularly to ensure a mutual understanding of expectations.

Table of Contents

SECTION A

GENERAL

I. Hurricane Season. Hurricane season begins on June 1st and extends through November 30th. When preparing for the arrival of a hurricane or similar severe weather, the overriding goal of the Captain of the Port (COTP) is to protect the safety of life, including vessel crews, facility personnel, and the general public. The COTP will also seek to protect the port's environment and the viability of the marine transportation system, including the port infrastructure, harbors, and channels.

II. Other Severe Weather. During periods of heavy weather other than hurricanes, the COTP may choose to enact some or all of the port conditions and accompanying restrictions and precautions identified below.

III. Area of Operations. For the purposes of this plan, the term "designated waters" as used in this plan and the attached checklists refers to the COTP Wilmington Zone as described in 33 Code of Federal Regulations, part 3.25-20. This includes the Cape Fear River, New River, White Oak River, Neuse River, Tar-Pamico River, Pasquotank River and tributaries to each, and the Intracoastal Waterway from the South Carolina/North Carolina border to the Virginia/North Carolina border, and the sea to the extent of the Exclusive Economic Zone.

A. Local Geography: The low, flat terrain of the COTP Wilmington coastal area is vulnerable to hurricane force winds, high tides, flooding, and heavy rains which accompany these tropical storms. The hurricane tidal front may extend 50-75 miles on both sides of the eye. The storm may curve or re-curve at any point and is potentially dangerous until it has passed 100 miles beyond. The possible existence of tornadic wind gusts in the hurricane force winds zone of the storm greatly increases the danger of "riding out" the storm in unsafe structures. Vessels underway, improperly moored or anchored within the COTP Wilmington Zone during hurricane conditions could damage facilities, bridges or other vessels. Therefore, the COTP, as a preventative measure, has established a list of highly vulnerable areas. These areas include, but are not limited to the following:

1. Coastal approaches extending seaward 30 nautical miles
2. Coastal inlets and sounds of North Carolina
3. Intracoastal Waterway
4. Bridges and overhead power cables, submerged cable and pipeline crossings
5. The main shipping channels of the Cape Fear River and Beaufort Inlet

B. Hazards. Bulk liquid oil and chemical facilities, and Designated Waterfront Facilities storing hazardous materials pose the greatest threat of environmental damage to the port during the passage of hurricane conditions. Upon receiving initial notification of an approaching storm, facility operations should include adequate and timely surveys to ensure proper stowage and securing of cargoes and equipment not in operation. Liquid levels in wastewater and other open-top storage tanks should be minimized in preparation of heavy rainfall amounts.

SECTION B

HURRICANE CONDITIONS AND CATEGORIES

I. Port Hurricane Conditions. Port conditions are set by COTP Wilmington and are used to alert the maritime community to changes in port operations needed to prepare for the hurricane's arrival. The Port conditions are based on the time gale force winds (34 knots or 39 mph) are predicted to arrive at Frying Pan Shoals Buoy #7 (FPSN7). These predictions are based on information obtained from the National Hurricane Center at http://www.nhc.noaa.gov/ and the National Data Buoy Center at http://www.marineweather.com/BanMWBuoys.html.

Broadcast Notice to Mariners (BNTMs) and Marine Safety Information Bulletins (MSIBs) will be broadcast and sent out via VHF-FM channels 16 and 22A, phone contact, electronic mail, and/or facsimile whenever a hurricane condition is set or altered. The actual notices may be modified to account for differing circumstances. One or more hurricane conditions may be skipped in preparing for an actual storm, due to changes in a storm's path, speed, or strength. The following designations will be used for setting Port Hurricane Conditions:

APPROXIMATE TIME	HURRICANE CONDITION
JUNE 1 – NOVEMBER 30	ALERT
72 HRS	4
48 HRS	3
24 HRS	2
12 HRS	1
STORM PASSES	RECOVERY

A. HURRICANE CONDITION ALERT. The time during which a hurricane can be expected to occur. This alert condition is automatically set on June 1st and remains in effect through November 30th, unless otherwise established.

B. HURRICANE CONDITION 4. Gale force winds (34 knots or 39 mph) are predicted to arrive at Frying Pan Shoals Buoy #7 within 72 hours.

1. Ports Status: **Open** to all commercial and recreational traffic.

2. Safety Zone established requiring:

   a) All self-propelled oceangoing vessels over 500 GT, all oceangoing barges and their supporting tugs, and all tank barges over 200 GT to report their intention to depart or remain in port.

b) All self-propelled oceangoing vessels over 500 GT, all oceangoing barges and their supporting tugs, and all tank barges over 200 GT, that wish to remain in port must request permission and submit an Application to Remain in Port to the COTP within 24 hours, or by Hurricane Condition 3.

3. Commence increased harbor patrols and advise vessel and facility operators of any conditions that require correction.

4. Advise port stakeholders of intentions for setting next condition.

C. HURRICANE CONDITION 3. Gale force winds are predicted to arrive at Frying Pan Shoals Buoy #7 within 48 hours.

1. Ports Status: **Open** to all commercial and recreational traffic.

2. All Vessel Applications to Remain in Port must be submitted to the COTP for approval by this time.

3. Individually assess vessels and barges desiring to remain in port.

4. Advise port of intentions for setting next port condition including degree of vessel control.

D. HURRICANE CONDITION 2. Gale force winds are predicted to arrive at Frying Pan Shoals Buoy #7 within 24.

1. Ports Status: **Closed** to **inbound** traffic and vessel traffic control measures in effect on vessel movements within the port.

2. Safety Zone established controlling vessel movements and activities as appropriate.

3. COTP approve or direct, as necessary, final mooring arrangements for vessels and barges remaining in port.

E. HURRICANE CONDITION 1. Gale force winds are predicted to arrive at Frying Pan Shoals Buoy #7 within 15 hours.

1. Ports Status: **Closed** to all **inbound** and **outbound** traffic.

2. Safety Zone established prohibiting vessel movements and activities unless specifically authorized by the COTP. Permission for vessels to move within the port may be granted up until 12 hours before the projected arrival of hurricane force winds (64 knots or 74 mph) at Frying Pan Shoals Buoy #7.

F. HURRICANE CONDITION RECOVERY. The storm is no longer a threat to the area, however some damage may have occurred and response and recovery operations are in progress.

1. Ports Status: **Reopened** to **outbound** traffic at completion of port survey. Vessel traffic control measures remain in effect on vessel movements within the port.

2. Safety Zone established controlling vessel movements and activities as appropriate.

3. COTP approve or direct, as necessary, departure arrangements for vessels and barges desiring to depart port.

II. National Weather Service (NWS) Advisories. The NWS uses the following terms to describe the risks posed by tropical storm or hurricane force winds to a geographic area. To access the COTP Wilmington Zone weather: http://nwsilm.wilmington.net/

A. TROPICAL STORM WATCH. Issued when there is the threat of tropical storm conditions within 48 hours.

B. TROPICAL STORM WARNING. A warning for tropical storm conditions, including sustained winds within the range of 39 to 73 miles per hour (34 to 63 knots), which are expected in a specified coastal area within 24 hours.

C. HURRICANE WATCH. An announcement that hurricane conditions pose a possible threat to a specified coastal area within 36 hours.

D. HURRICANE WARNING. A warning that sustained winds of 74 miles per hour (64 knots) or greater are expected in a specified coastal area within 24 hours.

III. Disaster Potential Scale for Atlantic Hurricanes. The strength of a hurricane is measured and categorized on the Saffir-Simpson Scale. The Scale's categories, and projected impacts, as described below:

A. CATEGORY I. Sustained winds of 74-95 MPH that can produce a storm surge 4-5 feet above normal with low-lying coastal roads inundated, minor pier damage, some small craft in exposed anchorages break moorings, no real damage to building structures and some damage to poorly constructed signs.

B. CATEGORY II. Sustained winds of 96-110 MPH that can produce a storm surge 6-8 feet above normal with low lying inland escape routes cut off by rising waters 2-4 hours before arrival of the center, considerable pier damage, marinas flooded, some trees blown down, major structural damage to exposed mobile homes, some damage to roofing material, windows, and doors, but no major damage to building structures.

C. CATEGORY III. Sustained winds of 111-130 MPH that can produce a storm surge 9-12 feet above normal, serious flooding along the coast, with many smaller structures near the coast destroyed, larger structures damaged by battering of floating debris, low-lying escape routes inland cut off by rising water 3-5 hours before the center arrives, destruction to mobile homes and some structural damage to small residences.

D. CATEGORY IV. Sustained winds of 131-150 MPH that can produce a storm surge 13-18 feet above normal with major damage to lower floors of structures near the shore due to flooding and battering action, low-lying inland escape routes cut off by rising water 3-5 hours before the center arrives, extensive roofing material damage, extensive window and door damage, and complete failure of roof structure on many small residences.

CATEGORY V. Sustained winds of greater than 150 MPH that can produce a storm surge of greater than 18 feet above normal with shrubs and trees down, considerable roofing damage, all signs down, severe window and door damage, complete failure of roof structures on many residences and industrial buildings, extensive glass failure, some complete building failures, small buildings overturned and blown over or away, and complete destruction of mobile homes.

IV. Historical Considerations. In this century, Category IV and V storms caused over 80% of all economic damage and deaths from hurricanes even though they comprised less than 10% of all hurricanes. These major storms cause extensive damage to the infrastructure of the impacted area. The damage from 130 mph sustained and turbulent winds can extend inland far past the area of coastal flooding. Community utility systems, schools, civil law enforcement capability, medical facilities, and the economy in general could be seriously affected or incapacitated. The impact on all people can be devastating and could require major disaster relief.

Since the 1996 hurricane season, Wilmington has been battered by nine hurricanes - Bertha and Fran in 1996, Bonnie in 1998, and Dennis, Floyd and Irene in 1999, Florence in 2000, Gustov and Kylie in 2002. The first, Hurricane Bertha, came ashore on July 12th as a Category I storm with wind gusts of 81 mph recorded at the North Carolina State Port in Wilmington. Damage estimates in New Hanover County were around $18 million, largely due to cleanup. Pender County suffered $12 million worth of structural damage and cleanup cost and $7.5 million in crop damage.

The second, Hurricane Fran, came ashore on September 5th as a Category III storm with wind gusts reaching 120 m.p.h. Prior to landfall, Hurricane Fran was about as large as Hurricane Hugo, with sustained hurricane force winds extending out as far as 140 miles from its center. At least 34 people were killed by Fran and damage estimates topped $3.2 billion.

In 1998, Hurricane Bonnie made landfall over the mouth of the Cape Fear River. Over the course of 18 hours, the storm battered Wilmington with Category II winds and torrential rains. Despite the length and severity of the storm, relatively little damage was incurred.

Hurricane Dennis arrived at Wilmington on August 30, 1999 as a Category I storm and pounded the northeastern North Carolina coast for two days before recurving and sending tropical storm force winds to the area again.

After two weeks of ground saturating rains, Hurricane Floyd, a Category III storm, struck the area with devastating winds and an additional twenty inches of rain. The resulting flood waters covered every major roadway into the city for four days and caused over $5 billion in damage to property as well as 69 deaths.

To cap off the 1999 season, Hurricane Irene threatened the coast in early October, but resulted in little impact to the storm-weary area.

In 2000, Florence did not actually make landfall in North Carolina. However the storm surge caused three drownings on September 12.

Hurricane Gustov was responsible for relatively minor damage to the Outer Banks when it struct North Carolina in early September 2002.

Hurricane Kylie became the third longest lived tropical cyclone in the Altantic Basin, lasting twenty two days. While the Hurricane itself did little direct damage to North Carolina, it spawned three tornadoes resulting in over 2 million dollars of damage.

The 2003 Hurricane season is forecasted to be 37% more destructive than average with a 48% chance of a Category III or greater hurricane striking the east coast. Adding support to this forcast is the fact that Tropical Storm Ana is the only named Atlantic tropical storm to form in April. The last time a named tropical storm formed before the Hurricane Season was 1981, which was slightly more active than the 2003 season is forecasted to be.

SECTION C

GENERAL GUIDANCE FOR ALL PORT USERS

The responsibility for natural disaster preparation and response rests with all affected individuals, families, private industry, and state and local government. This plan provides the general recommended actions to be taken by each member of the maritime community, with the ultimate goal of having everyone well prepared for an approaching hurricane. Checklists are enclosed with detailed guidance that is cumulative in nature for each of the following segments of the maritime community:

Vessels. Masters, owners, and operators of vessels retain the ultimate responsibility for the readiness condition of the vessel to withstand hurricane force conditions, whether underway, at anchor or moored.

Facilities. Waterfront facility owners and operators ensure the safety of vessels moored at their facility, and the safety of the facility, its personnel, and the surrounding environment.

Agents. Ships' agents serve as the liaison between the Coast Guard and the vessels remaining in port, either at anchor or moored to a facility.

Pilots. River and Docking Pilots provide a vital communications and control connection between the Coast Guard and the vessels transiting and anchored within the port.

Coast Guard. A general overview of activities being initiated by the COTP at Marine Safety Office Wilmington. In addition, the Coast Guard will be preparing its own personnel, facilities, vessels, and vehicles for the approaching heavy weather.

I. Hurricane Plan Review & Revision. Primary responsibility for review and updating this plan rests with Marine Safety Office (MSO) Wilmington. However, every port user should review this plan, paying particular attention to the portion that most directly affects them. It is important to insure that all information is correct and current. Please notify the MSO Port Operations Department of any errors or omissions you discover.

Every port user is responsible for ensuring that their own plan is current and ready to be carried out. Appropriate response to a hurricane rests with the individual actions of all involved.

II. Port User Meeting. Upon the start of Hurricane season, a general meeting may be requested by the COTP to review the effectiveness of this plan during the previous season.

III. Exercise. This plan should be exercised regularly by federal, state and/or local officials to ensure its completeness and accuracy. Members of the maritime community are encouraged to contact the MSO when designing and conducting hurricane exercises in preparation of the upcoming season.

IV. Phases of activity. The port activities surrounding hurricanes take place in three phases:

- pre-storm preparation;
- post-storm response and assessment; and,
- recovery and reconstitution of the port.

Other than urgent communications regarding emergency situations (i.e. personnel injuries requiring immediate care), any actions during a storm are neither required nor advised. Although the actions listed in this plan are the minimal precautions to be followed for the given hurricane conditions, the listing is not intended to be all inclusive, and additional preparations should be initiated by anyone affected by the approach of the storm. The COTP may impose additional restrictions during the various conditions of readiness as situations dictate.

A. Preparation. Initial preparations for the arrival of a hurricane are critical to the safety and security of the port and all personnel involved. Timely correction of hazardous conditions may significantly eliminate or reduce the loss of life and property during the heavy weather. It is the responsibility of every agency, organization, and individual in the maritime community to take every precaution to avert potential disaster.

1. Vessel Traffic. Vessel movements will be allowed as long as existing and forecasted weather and port conditions are deemed safe by the COTP. All self-propelled oceangoing vessels over 500 GT, all oceangoing barges and their supporting tugs, and all tank barges over 200 GT will be expected to leave port unless they have received permission from the COTP and the facility to remain. Closure of the waterway to inbound traffic will take place upon setting Hurricane Condition 2. Closure of the port to all inbound and outbound traffic will take place upon setting Hurricane Condition 1 or when the COTP deems it necessary to maintain safety of the port.

2. Storm Monitor. Upon initial notification of a hurricane that has the potential for affecting the mid-Atlantic region, each organization should monitor the predicted path and development of the storm. National Weather Service broadcasts and updates should be monitored closely.

During the period when the hurricane makes landfall and is affecting the COTP Wilmington Zone, the COTP and Group Fort Macon will monitor the activities throughout the zone from an Operations Center (OPCEN). The OPCEN will maintain continuous contact with other Federal, State, and local agencies to ensure coordinated dissemination of information and response to incidents. Private, commercial and government vessels that are able to render assistance in responding to incidents during and following passage should report to the nearest Coast Guard unit via radio for response coordination.

B. Response and Assessment. The port community faces six primary post-storm response phase tasks:

- Search and Rescue;
- Immediate relief for personnel who have a catastrophic loss;
- Initial damage assessment;
- Restoration of operational capability, especially that which contributes to the immediate relief needs;
- Establishing an emergency logistics system as necessary to support relief operations; and,
- Reestablishment or maintenance of Command, Control and Communication functions.

During post hurricane recovery, emphasis is put on immediate surveys of channel blockage, and prioritization of steps necessary to resume essential, then normal, vessel traffic. Hurricane Condition Recovery will be set as soon as practicable after the storm passes, with the port reopened to outbound traffic at the completion of a port survey. Upon storm passage, each member of the maritime community should begin to assess the damage incurred and report significant pertinent information to the COTP by any available communications means. The COTP must be made aware of any damage or situations that may affect the safe operation of a vessel or facility within the port as soon as possible. Timely notification to the Coast Guard or other response agency can greatly reduce the affects of environmental damage.

C. Recovery and Reconstitution. The recovery process involves numerous agencies at various levels of government possibly billions of dollars in costs for the entire affected community. Major recovery operations necessitate the joint coordination of federal, state, county and local members assessing and prioritizing their needs, and requesting necessary assistance through appropriate channels.

Each hurricane and the resulting impacts are different. To help capture important information concerning successful preparatory and response techniques, each organization should record their major activities in a written log. Following the storm recovery and reconstitution phase, a synopsis of this log, including observations and commentary on the validity of this plan, should be provided to the COTP for consolidation with other reports.